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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/674,710

09/29/2003

Robert G. Turcott

A03P3004-US1

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24473 7590 02/14/2007  
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EXAMINER

SMITH, TERRI L

ART UNIT

PAPER NUMBER

3762

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/674,710

Applicant(s)

TURCOTT, ROBERT G.

Examiner

Terri L. Smith

Art Unit

3762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-30 is/are pending in the application.
- 4a) Of the above claim(s) 24-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9 and 12-23 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office Action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11 January 2007 has been entered.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4–9 and 12–23 are rejected under 35 U.S.C. 102(b) as being anticipated by Salo et al., U.S. Patent 5,487,752.

4. Regarding claims 1, 4, 5, 12, 13 and 21, Salo et al. disclose controlling an implantable device to deliver therapy to the heart of a patient while switching among sets of control parameters during a series of consecutive evaluation periods that are substantially equal in duration to one another and less than about 12 seconds each in duration (e.g., Figs. 2–3 and 5; column 3, lines 51–54 where 5 beats is approximately 5 seconds and it is the Examiner's position that the switching among sets of control parameters is the different intervals shown in blocks 40 and 44 of Fig. 5) [NOTE: It is noted that the term consecutive modifies the term "evaluation periods" and that the evaluation periods follow one after the other. In addition, the claim is an

Art Unit: 3762

open ended “comprising” claim which does not preclude the use of another element, such as time between the evaluation periods as shown in Applicant’s Fig. 9, and such as the phrase “consecutive weekends.” Although there are days between the weekends, the weekends are still consecutive.]; detecting values representative of transient cardiac performance corresponding to the different sets of control parameters during the evaluation period (e.g., Fig. 5, block 42), and estimating optimal control parameters for maximizing cardiac performance based on the values representative of transient cardiac performance (claim 1) (e.g., Fig. 5; column 4, lines 55–62).

5. With respect to claim 2, Salo et al. disclose evaluation periods are sufficiently short so that hemodynamic feedback systems of a patient do not have time to readjust the cardiovascular system of the patient to a substantially equilibrium state before the control parameters are switched again (e.g., column 4, lines 9–13).

6. Regarding claims 6–8, Salo et al. disclose measuring values representative of transient cardiac performance of the heart of the patient during each evaluation period, and determining the difference in transient cardiac performance based on a comparison of the measured values (claim 6) (e.g., Figs. 3 and 5; column 8, lines 10–13); periods of time over which the values representative of transient cardiac performance are measured are each set equal to substantially identical portions of a respiratory cycle (claim 7) and to about 4 seconds (claim 8), wherein each respiratory cycle comprises one inspiration and one expiration (claim 7) (e.g., Figs. 3 and 6; column 3, lines 38–40; column 6, lines 8–13); controlling an implantable device to deliver therapy to the heart of the patient by alternating, from one evaluation period to another, between different sets of selected test control parameters and a set of reference control parameters (claim 9) (e.g., Figs. 3 and 5, blocks 42, 44, 46 and 48).

7. With respect to claims 14–16, Salo et al. disclose the step of determining the difference in transient cardiac performance based on a comparison of the measured values includes the steps of: detecting a value representative of transient cardiac performance during an immediately preceding evaluation period, detecting a value representative of transient cardiac performance during the given evaluation period, and generating a difference value representative of a change in transient cardiac performance between the prior evaluation period and the given evaluation period such that a single difference value is generated for each evaluation period (claim 14) (e.g., Figs. 3 and 5); the step of estimating an optimal set of control parameters includes the steps of: associating each difference value with a set of control parameters employed during a corresponding evaluation period, fitting a single/separate curve to the difference values versus associated test parameter values/a set of parameter values; and identifying a set of preferred control parameters providing maximal difference values as indicated by a single/separate curve and averaging a separate sets of preferred control parameters together to yield a single set of control parameters (claims 15–16) (e.g., Figs. 3, 5 and 6).

8. Regarding claims 17–20, 22 and 23, Salo et al. disclose adaptively adjust control parameters based on resulting changes in cardiac performance (e.g., column 8, lines 14–15, 27–28 and 40–42); and identifying control parameters that result in the most positive difference in cardiac performance as compared to all other control parameter values (claim 17) (e.g., Figs. 5 and 3); control parameters include one or more of: atrioventricular (AV) (claim 18) (e.g., Figs. 2, 3 and 6; column 4, line 62); values representative of one or more of stroke volume, cardiac output (claim 19) (e.g., Fig. 4, element 34, cardiac output sensor; column 4, lines 44–48 and 54–56); the initial step of determining whether to initiate an optimization procedure based on a

Art Unit: 3762

change in one or more of heart rate (claim 20) (e.g., Figs. 1–4); an external programming device (claim 22) (e.g., column 2, line 35); all steps of the method are performed by an implantable device(claim 23) (e.g., Fig. 1; column 2, lines 36–37).

9. Claims 1, 4, 5–9, and 12–23 and are rejected under 35 U.S.C. 102(b) as being anticipated by Dawson et al., U.S. Patent 5,643,327.

10. Regarding claims 1, 4, 5, 12, 13, 21 and 23, Dawson et al. disclose controlling an implantable device (Fig. 1, element 10, pacemaker) to deliver therapy to the heart of a patient while switching among sets of control parameters during a series of consecutive evaluation periods that are substantially equal in duration to one another and less than about 12 seconds each in duration (e.g., Figs. 7A–7B; column 6, lines 51–53 and 63–65); detecting values representative of transient cardiac performance corresponding to the different sets of control parameters during the evaluation period (e.g., Figs. 5, 5A–5B, 6, 7A–7B; column 5, lines 43–44 and 65–66; column 6, lines 1–3 and 13–14), and estimating optimal control parameters for maximizing cardiac performance based on the values representative of transient cardiac performance (e.g., Figs. 7A–7B; column 2, lines 59–66).

11. With respect to claims 6–9, Dawson et al. disclose measuring values representative of transient cardiac performance of the heart of the patient during each evaluation period, and determining the difference in transient cardiac performance based on a comparison of the measured values (claim 6) (e.g., Figs. 5, 5A–5B, 6, 7A–7B and 8; column 6, lines 51–59).

12. Regarding claims 14–16, Dawson et al. disclose the step of determining the difference in transient cardiac performance based on a comparison of the measured values includes the steps

Art Unit: 3762

of: detecting a value representative of transient cardiac performance during an immediately preceding evaluation period, detecting a value representative of transient cardiac performance during the given evaluation period, and generating a difference value representative of a change in transient cardiac performance between the prior evaluation period and the given evaluation period such that a single difference value is generated for each evaluation period (claim 14) (e.g., Figs. 5, 5A–5B, 6, 7A–7B and 8; column 6, lines 51–63); the step of estimating an optimal set of control parameters includes the steps of: associating each difference value with a set of control parameters employed during a corresponding evaluation period, fitting a single/separate curve to the difference values versus associated test parameter values/a set of parameter values; and identifying a set of preferred control parameters providing maximal difference values as indicated by a single/separate curve and averaging a separate sets of preferred control parameters together to yield a single set of control parameters (claims 15–16) (e.g., Figs. 5, 5A–5B, 6, 7A–7B and 8; column 6, lines 51–63).

13. Regarding claims 17–20, and 22, Dawson et al. disclose adaptively adjust control parameters based on resulting changes in cardiac performance (e.g., Figs. 5, 5A–5B; column 5, lines 43–55); and identifying control parameters that result in the most positive difference in cardiac performance as compared to all other control parameter values (claim 17) (Figs. 5, 5A–5B, 6, 7A–7B and 8; column 2, lines 59–66; column 6, lines 25–32); control parameters include one or more of: atrioventricular (AV) (claim 18) (Figs. 7A–7B and 9; column 2, lines 62–63); values representative of one or more of stroke volume, cardiac output (claim 19) (column 2, lines 60–61); the initial step of determining whether to initiate an optimization procedure based on a

Art Unit: 3762

change in one or more of heart rate (claim 20) (column 2, line 61); an external programming device (claim 22) (column 4, line 26).

*Allowable Subject Matter*

14. Claims 10–11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

15. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Terri L. Smith whose telephone number is 571-272-7146. The Examiner can normally be reached on Monday - Friday, between 7:30 a.m. - 4:00 p.m..

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Angela Sykes can be reached on 571-272-4955. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



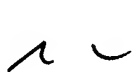
Art Unit: 3762

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
TLS

February 11, 2007

11 February 2007

  
George

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